

Appl. No. 10/677,399
Filed: October 1, 2003
Atty Dkt. HM-87423
Rule 111 Amendment "A" in
Response to 4/6/04 Office Action

Robert P. Swiatek, Patent Examiner
Art Unit 3643
Title: ELECTRIC FISH BARRIER FOR
WATER INTAKES AT VARYING DEPTHS

MARKED-UP VERSION OF AMENDMENTS TO THE CLAIMS

This listing of claims below will replace all prior versions, and listings, of claims in the application:

1 - 26 (canceled)

27. (new) An electronic barrier positioned in a body of water for governing the motion of fish in the water comprising:

- a first array of vertically oriented, adjacent electrode structures;
- a second array of vertically oriented, adjacent electrode structures, the second array spaced apart from the first array; and,
- a voltage source for creating a voltage potential between the first array and the second array.

28. (new) The electronic barrier of claim 27 wherein the electrode structures in the first array define a first plane and the electrode structures in the second array define a second plane.

29. (new) The electronic barrier of claim 28 wherein the first plane is spaced approximately six meters from the second plane.

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30. (new) The electronic barrier of claim 27 wherein each electrode structure includes a conductive portion and a support portion.

31. (new) The electronic barrier of claim 30 wherein the conductive portion surrounds at least part of the support portion.

32. (new) The electronic barrier of claim 31 wherein the electrode structure comprises:

- a pipe having a top end and a bottom end;
- a first insulative sleeve surrounding at least a portion of the pipe adjacent the top end;
- a conductive sleeve surrounding a portion of the first insulative sleeve; and,
- a second insulative sleeve surrounding a portion of the conductive sleeve, the exposed portion of the conductive sleeve forming the conductive portion.

33. (new) The electrode structure of claim 32 wherein the pipe is filled with concrete.

34. (new) The electronic barrier of claim 30 wherein the conductive portions are of the same length and are positioned the same distance below the surface of the water.

35. (new) An electronic barrier for governing the motion of fish in a body of water, the body of water having water flowing into a water discharge comprising:

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a first array of vertically-oriented, adjacent electrode structures, the first array positioned in front of the water discharge;

a second array of vertically oriented, adjacent electrode structures, each of the electrode structures in second array having a second voltage, the second array positioned in front of the water discharge, and spaced apart from first array; and,

a voltage source for creating a voltage potential between the first array and the second array.

36. (new) The electronic barrier of claim 35 wherein the electrode structures in the first array define a first plane oriented perpendicular to the flow of water and the electrode structures in the second array define a second plane-oriented perpendicular to the flow of water.

37. (new) The electronic barrier of claim 36 wherein the first plane is spaced approximately six meters from the second plane.

38. (new) The electronic barrier of claim 35 wherein each electrode structure includes a conductive portion and a support portion.

39. (new) The electronic barrier of claim 38 wherein the conductive portion surrounds at least part of the support portion.

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40. (new) The electronic barrier of claim 39 wherein the electrode structure comprises:

- a pipe having a top end and a bottom end;
- a first insulative sleeve surrounding at least a portion of the pipe adjacent the top end;
- a conductive sleeve surrounding a portion of the first insulative sleeve; and,
- a second insulative sleeve surrounding a portion of the conductive sleeve, the exposed portion of the conductive sleeve forming the conductive portion.

41. (new) The electrode barrier of claim 40 wherein the pipe is filled with concrete.

42. (new) The electronic barrier of claim 38 wherein the conductive portions are of the same length and are positioned in front of the water discharge.

43. (new) A method for governing the motion of fish in a body of water comprising:
generating a voltage gradient in the body of water by creating a first voltage potential in a first array of vertically-oriented, adjacent electrode structures and creating a second voltage potential, different than the first voltage potential, in a second array of vertically oriented, adjacent electrode structures, spaced apart from the first array.

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44. (new) The method of claim 43 wherein a least a portion of the voltage gradient is contiguous around the first and second arrays.

45. (new) A method for governing the motion of a fish in a body of water, the body of water having water flowing into a water discharge comprising:

generating a voltage gradient in the body of water by creating a first voltage potential in a first array of vertically-oriented, adjacent electrode structures, the first array positioned in front of the water discharge and creating a second voltage potential, different than the first voltage potential, in a second array of vertically oriented, adjacent electrode structures, the second array positioned in front of the water discharge, and spaced apart from the first array.

46. (new) The method of claim 45 wherein a least a portion of the voltage gradient is contiguous around the first and second arrays.

47. (canceled)